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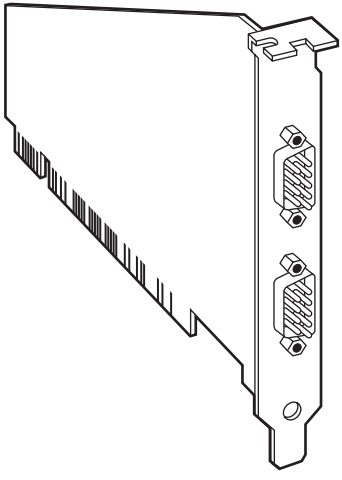
NETWORK SERVICES

MARCH 2003
IC128C-R3

PC Plus Adapter
Dual Serial PCI



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This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

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ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

CONTENTS

1. Specifications.....6

2. Introduction 7
2.1 General 7
2.2 Package Includes.....7

3. Quick Install 8

4. Hardware Installation.....9

5. Software Installation 11
5.1 Windows 95/98/Me/2000/XP Installation 11
5.1.1 Windows 95/98/Me/2000/XP
Driver Installation 11
5.1.2 Setting Data Rates.....14
5.1.3 Setting FIFO Control 17
5.1.4 Flow Control 20
5.1.5 Redirecting Com Port Names 22
5.1.6 Modem Speed Set.....24
5.2 Windows NT 4.0 Installation 26
5.2.1 Driver Installation.....26
5.2.2 Setting a 230.4 kbps Data Rate 28

1. Specifications

System Requirements — IBM® PC or compatible with Windows® 95/98/Me/2000/XP or Windows NT®

Speed — 460.8 kbps

Connectors — (2) DB9

Card Type — PCI

Power — From PC bus

Size — ¾ Card

2. Introduction

2.1 General

The PCI Plus Adapter Dual Serial PCI installs in your spare PCI port to give you two high-speed serial ports. It uses PCI shared-interrupt structure, eliminating IRQ conflicts. It's 100% compatible with all 56K external modems and ISDN terminal adapters. Drivers for Windows 95/98/Me/2000/XP and Windows NT are included.

2.2 Package Includes

Included in your package, you should have the following items. If any item is missing or damaged, please contact your dealer immediately.

- PCI Plus Adapter Dual Serial PCI printed circuit board
- One software installation diskette
- This user's manual

3. Quick Install

Windows 95/98/Me/2000/XP

1. Verify the number of Com Ports in your system (Note that an internal modem uses a Com Port address).

2. With the power off, place the Adapter into any free PCI slot.

3. Launch Windows—new hardware will be found.

4. When prompted, insert the Adapter installation diskette and point Windows to the A drive.

5. After Windows has booted, click the Start button, then Settings, Control Panel, System, Device Manager, Ports. The Adapter ports will be listed as two of your Com Ports. Click "Properties" to change the default settings as desired.

NOTE

For installation instructions using Windows NT 4.0 see **Section 5.2**. For Windows 3.1/3.11 installation, refer to the readme.txt file found in the A:\other directory.

4. Hardware Installation

1. Before opening the casing of your computer, make sure that all power is off.

2. Locate an unused PCI slot and insert the Adapter into it. Make sure that it is well seated.

3. Screw the metal backplane of the Adapter board to your PC's casing and replace the machine's cover.

4. Connect your modem cable to whichever port on the Adapter that you would like to use first and turn the PC on.

NOTE

In standard installations of Windows 2000/XP, the I/O address cannot be changed to a legacy address.

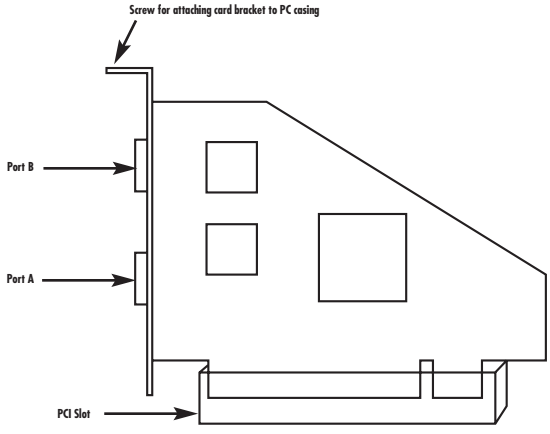

Figure 4-1. Installing the Adapter.

5. Software Installation

5.1 Windows 95/98/Me/2000/XP Installation

NOTE

Make sure that you are installing the correct Adapter drivers for the appropriate operating system. DO NOT install NT drivers under Windows 95/98/Me/2000/XP.

5.1.1 Windows 95 Driver Installation

1. Once the Adapter is installed in your PC, turn on your computer. Windows will automatically detect the Adapter as a new PCI Serial Controller and ask you to insert the Installation diskette. Insert the diskette as prompted.

2. After the necessary files have been copied, Windows will complete the full installation of the Adapter. During this process, a Parent will be created in Device Manager, and two child ports will be created in Device Manager/Ports. The following describes how you may custom configure these ports for your personal needs.

3. Click on the Start button, then choose Settings, Control Panel, System, Device Manager. You should see a window that is similar to the one shown in **Figure 5-1**.

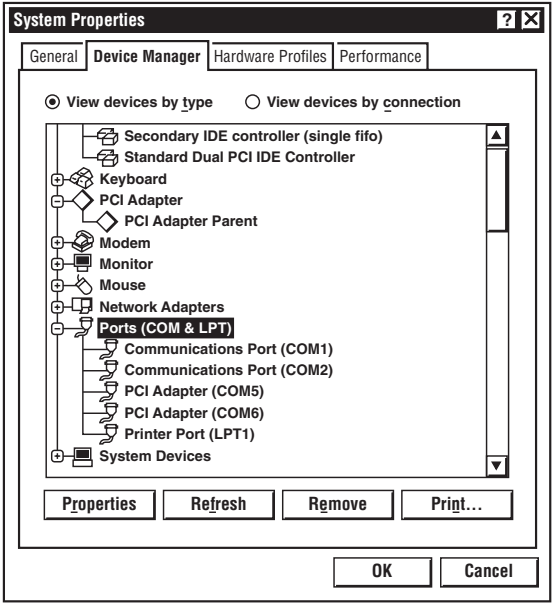

Figure 5-1. System Properties window.

4. Click on Ports and select one of the ports listed under the heading Adapter.

5. Click Properties. The screen shown in **Figure 5-2** will appear:

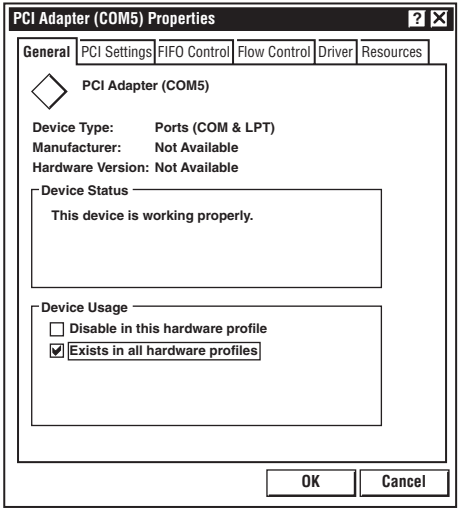

Figure 5-2. PCI Properties screen.

The Adapter hardware appears in Device Manager in two places: under its own tree and as part of the Ports tree.

NOTE

The Resources (Com Address and IRQ) used by the individual ports on the Adapter cannot be modified. Interrupt Resources may be modified in the Parent (see Device Manager), but not for individual ports because both ports on the Adapter share one IRQ. Interrupt changes require a reboot to take effect.

The Com Port designation number of each of the Adapter's ports may be changed in software. If you wish to modify the Com numbering of either port on the Adapter (for example, Renaming Com 5 to be Com 4), use the Redirect utility in the **Utils** subdirectory on your diskette. See **Section 5.1.5**.

5.1.2 Setting Data Rates

You can set the data rate of the Adapter using the Bits per Second pull-down menu.

NOTE

This menu will also appear when setting the "Port Properties" in any communications application, and may have to be set independently of your Control Panel settings. Control Panel settings may not necessarily be linked to those of your communications application. For example, Port speeds in Dial-Up Networking are controlled independently of speed settings in Device Manager.

For optimum performance, always verify that your Adapter is set to the maximum speed supported by your modem, and that both speed settings are the same in every application.

NOTE

The setting of Communications Port Data Rates is often the most confusing of tasks encountered by modem users. For this reason, we have included the Modem Speed Set utility in the **Utils** subdirectory of your diskette. We strongly recommend using this utility for all Adapter-to-modem connection.

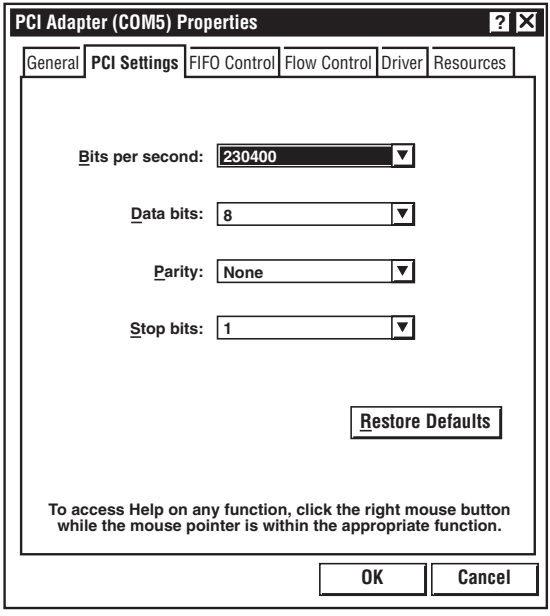

Figure 5-3. Com5 Properties screen.

5.1.3 Setting FIFO Control

Each of the Adapter's two ports incorporates a 32-byte FIFO (first-in-first-out) buffer.

The FIFO control tabs set the buffer "trigger" levels. When the buffer is filled to its trigger level with the selected number of bytes, the CPU will be interrupted and asked to either reload the buffer (for transmission), or retrieve data from the buffer (for reception).

Most efficient data transmission occurs when the CPU is interrupted infrequently. For each interrupt, the CPU can then service the buffer with larger data blocks: During transmission, it can place a large burst of data into the buffer, and during reception it can retrieve a large block from the buffer and then continue multi-tasking.

Ideally, therefore, Receive triggers should be set as high as possible and Transmit triggers as low as possible.

However, if the Transmit trigger levels are set too low, or Receive triggers too high, and the CPU is busy when an interrupt is called by the Adapter, a short period of inactivity may occur between the port and the modem. This will reduce effective transmission/reception speeds.

Optimum buffer settings depend on your modem speed, your CPU speed, and the amount of multi-tasking that occurs while online. For a fast modem and fast CPU performing few multi-tasking functions, set transmit triggers low and receive triggers high. If multi-tasking while online, set transmit triggers higher and receive triggers lower.

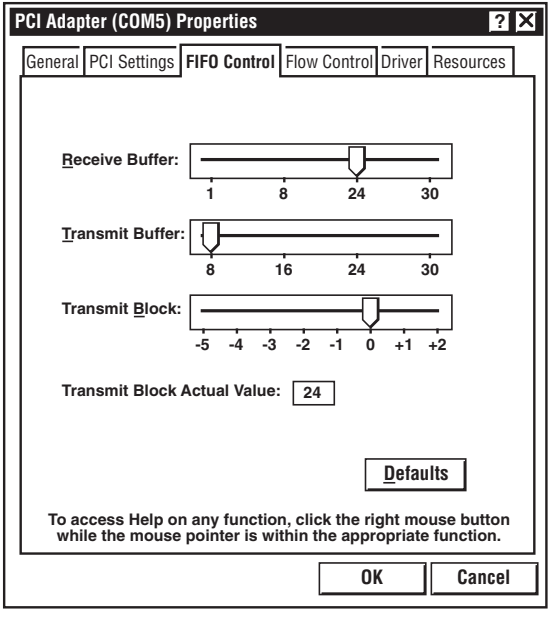

Figure 5-4. FIFO Control screen.

5.1.4 Flow Control

"Flow Control" refers to the type of signaling that is used between the modem and the Adapter.

If you are connecting the Adapter to a modem or ISDN terminal adapter, use the default setting of Hardware (RTS/CTS) flow control.

Software flow control (XON/XOFF) is used only for connecting the Adapter to a non-modem serial device (for example, using a null-modem cable to connect to another Com Port).

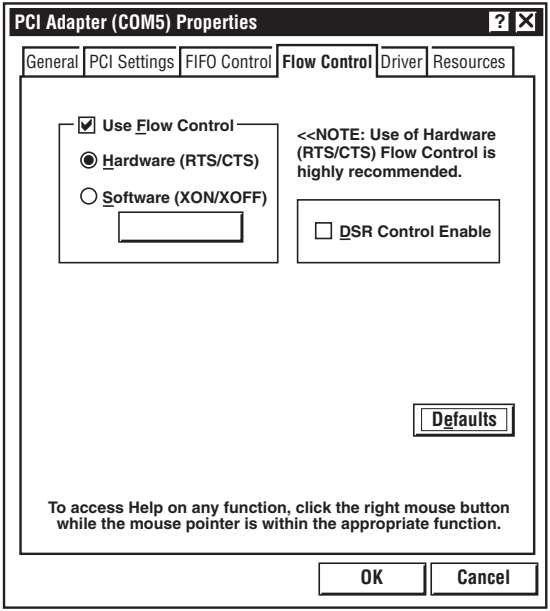

Figure 5-5. Setting flow control.

5.1.5 Redirecting Com Port Names

The Adapter takes advantage of Windows inherent support for a multitude of Com Ports, and allows you to add one or more ports beyond the traditional Com 4. Windows will always recognize Port B on the Adapter using a Com designation with a higher number than Com 4.

Unfortunately, many communications application programs do not recognize Port designations beyond Com 4. So, you might need to rename one or more of the Ports in your PC to use different Com numbers. For Windows 95/98/Me, this may be accomplished using the Port Redirect utility found in the **Utils** subdirectory of your Adapter diskette. This utility may be run from the diskette or installed on your hard drive by using the Setup.exe program in the **Utils** subdirectory.

To install the Redirect utility on your hard drive, insert the diskette into your floppy drive, click **Start**, **Run**, and type `A:\Utils\Setup`.

To change COM numbers in Windows 2000/XP, go to **Device Manager** and double-click on the port you want to change. Click on **Port Settings**, then **Advanced**. Choose the number you want form the pull-down menu and click **Apply**.

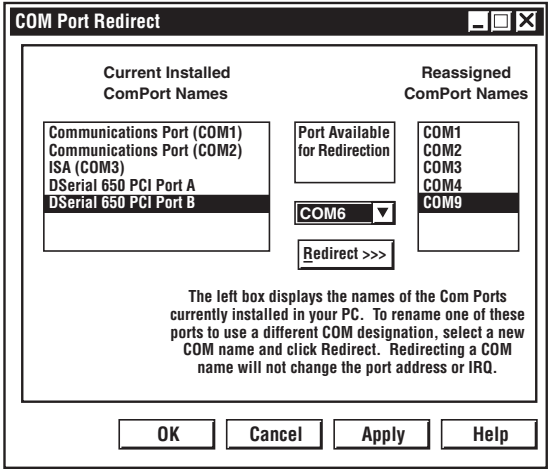

Figure 5-6. COM port redirect screen.

5.1.6 Modem Speed Set

The Adapter supports data rates up to 460.8 kbps, including 115.2 kbps and 230.4 kbps. However, not all modems support Com Port rates above 115.2 kbps.

If your modem does not support higher data rates and you select a higher data rate in the Properties, Windows will automatically default to the slowest supported rate in the chain.

Some modems do support higher data rates but require special settings (AT Commands) and INF files for configuration. A software utility called "Modem Speed Set" is included. It automates these functions and allows for easy speed reconfiguration. This utility may be found in the Utils subdirectory of your diskette, and is constantly being updated to support more modems. Please call for technical support for details about updates.

To install the Modem Speed Set utility on your hard drive, insert the diskette into your floppy drive, click **Start**, **Run**, and type `A:\Utils\Setup`.

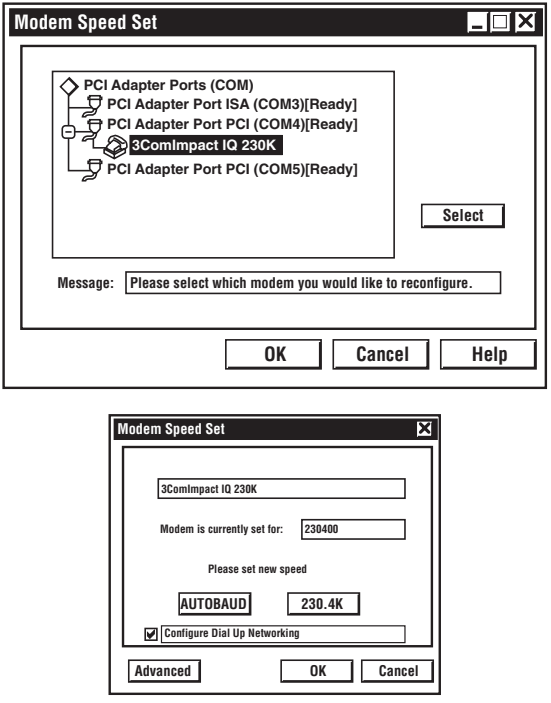

Figure 5-7. Speed set screens.

5.2 Windows NT 4.0 Installation

NOTE

Make sure that you are installing the correct Adapter PCI drivers for the appropriate operating system. DO NOT install Windows 95/98/Me/2000/XP drivers under Windows NT.

5.2.1 Driver Installation

1. Once the Adapter is installed in your PC, turn on your computer and start NT.

2. Place the Adapter installation diskette into your floppy drive and select **Run** from the Start Menu. When prompted, type: `A:\NT4.0\Setup`.

3. After the necessary files have been copied, select My Computer and start Control Panel. A new icon will appear called "Adapter." This applet should now be used to configure ALL Com Ports in your PC—not just PC Plus Adapter Serial PCI ports.

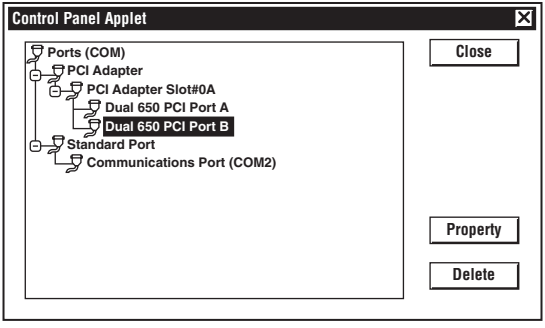

Figure 5-10. Control panel applet screen.

NOTE

Com 1 may not appear in this applet if you have your mouse attached to Com 1.

5.2.2 Setting a 230.4 kbps Data Rate

The Adapter supports data rates up to 460.8 kbps, including 115.2 kbps and 230.4 kbps. However, not all modems support Com Port rates above 115.2 kbps.

If your modem does not support higher data rates and you select a higher data rate in the Properties, Windows will automatically default to the slowest supported rate in the chain.

Some modems do support higher data rates, but require special settings (AT commands) and setup files for configuration. Contact your modem manufacturer for details.

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